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no.113

MOSCOW, MARCH, 1939 EXTENSION BULLETIN NO. 113

UNIVERSITY OF IDAHO
COLLEGE OF AGRICULTURE

EXTENSION DIVISION

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Fourth Year Canning

By

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COOPERATIVE EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS
OF THE STATE OF IDAHO UNIVERSITY OF IDAHO COLLEGE OF
AGRICULTURE AND UNITED STATES DEPARTMENT OF
AGRICULTURE COOPERATING

BOYS' AND GIRLS' CLUBS

Printed and distributed in furtherance of the purposes of the Cooperative Agricultural Extension Service provided for in Act of Congress May 8, 1914.

Fourth Year Canning Requirements

For Completion	For Exhibits
5 quarts of fruit	2 varieties of fruit
5 quarts of vegetables	2 varieties of vegetables
5 quarts of meat (two kinds)	2 varieties of meat
	2 varieties of jelly
5 glasses or jars of jelly, jam, pickles or relish	2 varieties of pickles or relish
5 quarts of soup mixture	2 varieties of soup mixture

Fourth Year Canning

Factors Responsible for Good Results

It is important any time to save by some suitable method of preservation, all possible products from the garden, orchard, or market, storing those foods that may be kept by this method. Can or dry those that cannot otherwise be kept by storage and the "ends of the garden" or small quantities of fruits and vegetables may make an appetizing part of the meal by suitable methods of preservation such as preserves, conserves, relishes, pickles. They usually are not eaten in large quantities so the "odds and ends" often make an acceptable possibility. The following factors must be kept in mind:

Good quality of—

a. Fruits and vegetables.
b. Vinegar.
c. Spices in suitable quantity.

The use of poor quality fruits and vegetables produces poor flavor. Too weak vinegar may cause soft pickles or spoilage. Too much spice covers the flavor of fruit or vegetable. Spice left in the mixture too long causes a dark product. *The proportion of sugar and fruit or vegetables and vinegar and spices should be right to obtain good results.*

The following recipes are given to utilize more completely farm products and add variety to the meal accompaniments.

Relishes

In making relishes, pickles or conserves, *use judgement and work carefully. Be sure your products are sterilized, but not overcooked.*

Carrot Relish

1 quart carrots, chopped
1 large red pepper and
1 green pepper, chopped fine
2 cups vinegar
2 teaspoons salt
1 medium sized white onion, chopped fine
½ cup sugar
½ teaspoon pepper
1 cup celery, chopped fine

Cook carrots until tender. Chop the celery, the onion, and the pepper very fine. Combine these ingredients with the carrots, add all other ingredients and cook until clear. Seal hot.

Celery Relish

1 quart celery, chopped
2 large red peppers, chopped
1 teaspoon salt
½ cup sugar
1 cup white onions, chopped
2 large green peppers, chopped
2 cups vinegar
1 teaspoon mustard

Take the large stalks of celery for celery relish. Chop the celery and onion. Cook separately in salted water until tender (2 teaspoons of salt to each quart of water). Drain, add chopped peppers from which the seeds have been removed. Add all other ingredients and cook until tender. Seal hot.

Beet Relish

1 quart beets, chopped
2 red peppers, chopped
½ cup grated horseradish
½ cup sugar
1 medium-sized white onion
2 teaspoons salt
2 cups vinegar

Cook the beets until tender. Remove the skins and chop. Add the onion and peppers. Combine all ingredients and cook the mixture until it is clear. Seal hot.

Cucumber Relish

3 cups cucumbers, finely diced
3 cups cabbage, finely chopped
2 onions, chopped (may be omitted)
2 cups celery, finely sliced
1 large green sweet pepper, chopped
1 large red sweet pepper, chopped

Mix these ingredients with vinegar seasoned to the taste with salt and sugar, bring to a boil, and seal hot.

Blue Plum Relish

9 pounds blue plums
6 pounds sugar
2 quarts vinegar
1 ounce stick cinnamon

Wash plums well, put in an earthen crock. Then bring vinegar and rest of ingredients to boil. Pour over plums and let stand over night. In the morning drain off the vinegar and bring again to a boil and pour over plums. Then put in a kettle and simmer slowly for 20 minutes, seal tightly. This is fine with cold meats, and the plums, well drained and served with French dressing, make a fine salad.

Dixie Relish

1 quart cabbage, chopped
1 pint white onion, chopped
1 pint sweet red pepper, chopped
5 tablespoons salt
4 tablespoons mustard seed
2 tablespoons celery seed (crushed)
¾ cup sugar
1 quart cider vinegar

Soak the pepper in brine (1 cup salt to 1 gallon water) for 24 hours. Drain well, remove seeds and coarse white sections. Chop separately, and measure the chopped cabbage, peppers and onions before mixing. Add spices, sugar, and vinegar. Let stand overnight covered in a crock or enameled vessel. Pack in small sterilized jars.

When ready to pack, drain the vinegar off the relish in order that the jar may be well packed. Pack the relish in the jars, pressing it carefully; then pour over it the vinegar which was drained off. Paddle the jar thoroughly to get every bubble out, and allow the vinegar to displace all air spaces. Garnish each jar with two slender strips of red pepper. Place these strips vertically on the seams in the jar on opposite sides. Cap, clamp and process for 15 minutes at 180° Fahrenheit. In packing alternate the products to make a colorful arrangement.

Catsup

10 pounds red ripe tomatoes
3 onions
2 sweet red peppers
1 cup vinegar
¾ cup sugar
2 teaspoons paprika
1 teaspoon ground mustard
1 teaspoon celery seed
1 tablespoon salt
1 teaspoon allspice (whole)
1 teaspoon whole cloves
3 two-inch pieces stick cinnamon

Wash the vegetables, slice, and remove the seeds from the peppers. Cook the vegetables for about 30 minutes, then press

through a fine sieve. Boil the pulp rapidly for about 30 minutes, or until somewhat thickened. Add the remaining ingredients after tying the allspice, cloves, and cinnamon in a piece of cheesecloth. Boil the mixture until thickened and stir frequently. Fill sterilized bottles with the catsup, use new cork stoppers, and dip the bottle tops in sealing wax or melted paraffin to make an airtight seal. Store in a dark cool place. This quantity of tomatoes will yield from 1 to 2 quarts of catsup.

Chili Sauce

5 quarts skinned ripe tomatoes, chopped
2 cups sweet red pepper, chopped
2 cups green pepper, chopped
1½ cups onions, chopped
1 cup sugar
3 cups vinegar
1 teaspoon ground cloves
1 teaspoon ground allspice
1 teaspoon ground cinnamon
3 tablespoons salt

Combine the chopped vegetables, salt, and sugar, and simmer until the mixture begins to thicken. Then add the vinegar and spices and cook the mixture down until it becomes a thick sauce. Pour into hot sterilized bottles, use new cork stoppers and dip the bottle tops in sealing wax, or melted paraffin. Store in a dark cool place. This recipe yields about three quarts of sauce.

Peach Chutney

10 pounds thinly sliced peaches
1½ cups salt
5 pounds sugar
1¾ quarts cider vinegar
2 pounds almonds, chopped
1½ pounds orange peel, chopped
1½ pounds citron, chopped
2 pounds raisins
3 ounces green ginger, cooked and chopped fine
3 cloves garlic, chopped
30 small sweet red peppers, seeds removed
2 pounds onions, chopped fine
1½ pounds lemon peel, chopped

Sprinkle the sliced peaches with salt and let stand overnight. Combine the sugar and the vinegar and boil 5 minutes. Add the drained peaches. Cook until tender, then add the other ingredients and cook until fairly thick, usually about 2 hours.

Score Card

Relishes

Package—Sealed jars of specified size, clean, neatly labeled.....10
Color—Characteristic of the kind. Free from discoloration from excessive spices or overcooking. 25
Consistency 30
Catsup—Smooth and thick enough to prevent separation.
Chili sauce—Chopped ingredients cooked to a uniform thick sauce.
Chutney—A mixture of chopped fruits, nuts and vegetables, highly seasoned and cooked until thick.
Chopped pickles—Crisp and firm, fairly uniform pieces of a combination of vegetables.
Flavor—Appetizing, characteristic of the kind, free from excessive sweetness, spiciness, or overcooked flavor.....35

100

Pickles

Principles Involved

Quick process pickles are made from vegetables salted down overnight and combined with spices and vinegar the next day without cooking. Next are the brined pickles, also called fermented pickles, because they go through a curing process lasting from two weeks to two months. Dill pickles and the large sour cucumber pickles belong to this type. Sweet pickles, mustard pickles, and other mixtures are often made from the vegetables. Send for Farmers' Bulletin 1438, "Making Fermented Pickles," five cents a copy, Superintendent of Documents, Government Printing Office, Washington, D. C. Some of the recipes given on the following pages supplement that bulletin.

Whatever the type, the purpose of pickling is to get tart spicy flavor through the vegetable or fruit; to keep or develop attractive color; and to give crispness, especially to vegetable pickles. The following points are important:

Choose fresh, high-quality fruits or vegetables for pickling. Sort fruits for size and stage of ripeness, and keep the ripest in one lot if there is marked difference. If pickling cucumbers, peaches, or other fruits or vegetables whole, have them uniform in size. Then the pickling liquid penetrates and seasons them evenly.

Use a blend of high-quality spices. The flavor continues to come out of spices as the pickles stand, so do not use too much spice.

Kind of salt to use—common, coarse salt or rock salt is best.

It is important to use good quality fresh cider vinegar for pickling, or for pickling onions alone, use distilled vinegar which is clear and colorless.

In general, granulated sugar is better than brown sugar in pickles. Sometimes a little brown sugar gives richness.

In general, pickles keep better if sealed air-tight for storage. Sometimes they will keep satisfactorily in covered jars in a cold place, but there is danger of spoilage.

Causes of:

Shriveled pickles.—Too strong a brine or too strong vinegar or too much sugar will cause pickles to shrivel. If very sweet or very sour pickles are to be the finished product, use weak solutions first, then use the strong ones to complete the process.

Soft pickles.—If too weak a brine is used, or if brine does not cover pickles in the jar, or if products are over-cooked, or if pickles are left in a strong brine too long, pickles will be soft.

Hollow pickles.—This is the result of keeping the cucumbers for too long a time before they are put in the brine. They should be put into the brine at once.

Sweet Pickled Carrots

Select small even-sized carrots; boil until tender and pack in fruit jar. Fill jars overflowing with liquid made with 1 pint cider vinegar, 1 cup of sugar, 2 tablespoons mixed spices. Fine to serve with cold meats.

By using a vegetable cutter, round carrots may be shaped and packed, using the same mixture. Add several small seed onions for garnish or they may be garnished with small slices of sweet pickles.

Sweet Pickled Cucumbers and Red Peppers

12 sound cucumbers
8 sweet red peppers
1 cup brown sugar
1 teaspoon salt
1 pint vinegar
1 teaspoon black pepper
1 teaspoon celery salt
1 teaspoon ground cloves
1 teaspoon allspice

Cut the cucumbers in slices 1 inch thick. Remove the seed sacks from the peppers and cut peppers lengthwise in strips 1 inch wide. Place alternate layers of each in a preserving kettle. Sprinkle ½ cup salt over them, cover with cold water, and let stand 4 hours. Strain and wash thoroughly in cold water to remove the brine. Now put the cucumbers and peppers back into the preserving kettle, and cover and cook until tender, stirring slowly and often. It will take 20 to 30 minutes. Pack into jars and process by simmering for 15 minutes at 180° F.

Pickled Cucumber Slices

Select medium-sized cucumbers. Peel and slice thinly. To each gallon of slices sprinkle 1 cup of salt. Let stand for 12 hours; drain out the salt water; drop slices into glass jars, cover with pure, cold cider vinegar, seal and process in water bath by simmering for 15 minutes at 180° F.

Crisp Pickle Chips

1 quart sliced cucumbers
1 pint vinegar
1 cup light brown sugar
½ teaspoon mustard seed
2 quarts water
1 sweet green pepper, sliced
1 sweet red pepper, sliced
1 large onion, sliced
¼ cup salt
¼ teaspoon tumeric

Use slender green cucumbers about 5 inches long. Scrub well, and cut off stem ends down to seeds. Slice thinly.

Dissolve salt in water, pour over sliced vegetables, and let stand 2½ hours. Drain. Heat vinegar, mustard seed, and sugar. Add vegetables, bring to boiling point, add tumeric, and let cool. Can when cool. This makes about 1½ pints.

Puzzle Pickles

1 bunch celery
2 large heads cauliflower, chunked
1 peck green tomatoes
1 dozen large cucumbers
2 small heads cabbage
1 quart butter beans
1 quart kidney beans or shelled beans

Chop all but beans, mix together and sprinkle ¼ cup salt over all. Put in flour sack and drain overnight. Put in kettle, cover with vinegar in which 2 cups sugar and 4 tablespoons mixed spices have been boiled. Cook about one hour, then seal in jars.

Watermelon Pickles

1 watermelon, medium sized (rind)
3 pounds brown sugar
1 quart vinegar and 1 ounce cloves

Pare and cut rind in oblong thick slices. Boil 1 gallon of water with 1 ounce of alum and pour over sliced rind; let stand 8 hours. Remove rind from alum water, cover with fresh cold water and let stand for 8 hours.

Boil brown sugar with vinegar, strain, add cloves and well drained watermelon rind. Boil all together until rind is soft and clear, place in glass jars while hot.

Mixed Vegetable Pickles

1 pint carrots, cooked and cut in strips
1 green pepper
3 medium-sized onions, sliced
⅔ cup sugar
½ teaspoon paprika
1 red pepper or 2 pimentos, chopped
1 cup cooked string beans
1 cup vinegar
1½ teaspoons salt
¼ teaspoon tumeric

Combine ingredients and cook slowly until mixture is clear.

12-Day Pickles

12 large cucumbers
3 pounds sugar
½ teaspoon salt
½ teaspoon cloves
1 teaspoon cinnamon
1 pint vinegar

Soak cucumbers in warm brine three days. (Brine—1 cup salt, 1 gallon water.) Soak in cold fresh water three days, changing water each day. Cut cucumbers in 1 inch lengths and cook until tender in weak vinegar 15 minutes. Let stand three days. Make syrup of other ingredients. Boil and pour over cucumbers three consecutive days, reheating each day. Seal while hot.

Lazy Wife Pickles

(so named because so easy to make)

Mix 1 gallon vinegar, two-thirds cup of water, 1 cup mustard (dry).

Mix well and put in a stone crock. Pick as many cucumbers as you wish—a dozen or a hundred. Wash well and then pour boiling water over them. Let stand until cold, then take out and put in the prepared vinegar. These will be crisp and tender.

Quick Process Pickles

For quick-process pickles the vegetables are salted down overnight to draw out the juices. With whole onions a short processing period may be substituted. Quick-process pickles are not as crisp as the long-brined pickles and the flavor is different, but they require much less work.

Score Card*

Pickles

Package—Sealed jars of uniform size, clean, neatly labeled. 10
Uniformity of size—Whole or in pieces of suitable size. 10
Color—Uniform, characteristic of the kind. 20
Consistency. 30
Pickled Fruits—Tender, plump, unbroken skins or flesh, not shriveled or overcooked.
Cucumber Pickles—Uniformly crisp and firm, not shriveled from excess salt, sugar or acid.
Flavor. 30
Pickled Fruits—Characteristic of the kind, blended throughout, free from excessive acid, spiciness, or overcooked flavor.
Cucumber Pickles—Characteristic of the kind, blended throughout, free from excessive acid, spiciness, or sweetness.

100

* From score cards adopted by Bureau of Home Economics, Washington, D. C.

GAUGE PRESSURE AND PROCESS TEMPERATURE

Gauge pressure corresponding to specified process temperatures at various altitudes.*

Temp. Deg. F.	Sea Level	Feet above sea level							Temp. Deg. C.
		500	1000	2000	3000	4000	5000	6000	
225	4.2	4.5	4.7	5.2	5.7	6.2	6.6	7.1	107.2
240	10.3	10.5	10.8	11.3	11.7	12.2	12.7	13.1	115.6
250	15.1	15.4	15.6	16.1	16.6	17.1	17.5	18.0	121.1

*This table is taken from the National Canners Association Bulletin 26-L (Third Ed.) "Processes for Non-Acid Canned Foods in Metal Containers." June 1937.

Evidences of Spoilage*

Foods canned in tin sometimes show the following evidences of spoilage:

Buckled cans.—Cans that have caved in, or collapsed, on the sides are called buckled cans. This may occur when No. 3 or larger-sized cans are cooled too quickly after processing. These large cans should be allowed to remain in the cooker until the pressure gauge has reached zero to avoid a too sudden change of pressure. Cans of smaller sizes when slack-filled sometimes buckle on cooling and break the seams. In this case the food should be put into other cans and reprocessed, or used at once.

Springers.—Springers are cans with bulged ends. The ends of cans generally become convex, or outwardly curved, during processing because of expansion of the food and the formation of steam. When the can cools the ends should snap back to a concave, or inwardly curved position. If a can is too full, the ends may not snap back into proper position. Such a can is called a springer. Such cans should be marked so they will not be confused with those that become bulged during storage.

Swelled cans.—When gas is formed within a can it may cause the ends to bulge. For example, some fruits, such as prunes, apples, and some berries, react with the metals of the can, and hydrogen gas is liberated. When this collects, the can may become a "hydrogen swell." In this case the food itself is not affected. However, in several types of food spoilage, gases are produced that cause swelled cans. For this reason bulged ends on a can are regarded as an indication of spoilage. When canned fruits show such a condition, they should be examined for other indications of spoilage. When a can of meat or non-acid vegetables has bulged ends, it should be disposed of by burning.

Perforations.—Some of the fruits that react with the metals of the can producing hydrogen swells may also cause perforations and leaks. This results from the centering of the chemical reaction on a few points. If the can is discovered soon after leaking starts, the food may be used, but if the leakage is not detected until later, fermentation or other types of spoilage may have set in.

Canned foods are likely to develop perforations and hydrogen swells rather quickly if stored in too warm a place, hence cool storage is especially important for canned fruits that react in this way on the metal.

Frozen Canned Foods

Freezing does not cause canned foods to spoil unless it breaks the seal and permits micro-organisms to enter. All frozen canned foods should, therefore, be examined for leakage. Sometimes freezing may bulge tin cans and spread the seams enough to permit bacteria to enter and yet not cause leakage. Bulged cans of frozen food should be used as promptly as possible if they cannot be kept frozen.

* Taken from U. S. D. A. Farmer's Bulletin No. 1762, *Home Canning of Fruits, Vegetables and Meats.*

Suggestions for Club Meetings

First Meeting—*Organization*

1. Call to order.
2. Roll call.
3. Election of officers.
4. Selection of time and place of meetings.
5. Requirements explained by leader.
6. Reading and discussion of score card for relishes, pickles, etc.
7. Discussion of products used.
8. Plans for next meeting. Appointment of demonstration team.
9. Announcements by leader.
10. Club pledge.
11. Dismissal.

Second Meeting

1. Call to order.
2. Roll call.
3. Demonstration—vegetable relish.
4. General discussion, show ways of using, economy in practices.
5. Appointment of demonstration team for next meeting.
6. Song.
7. Club pledge.
8. Dismissal.

Third Meeting

1. Call to order.
2. Roll call.
3. Demonstration of fruit relish.
4. Appointment of team for demonstration for next meeting. Appoint committee to have products for demonstration on hand.
5. Club pledge.
6. Games.
7. Dismissal.

Fourth Meeting

1. Call to order.
2. Roll call.
3. Practice judging of relishes, using score card. Also practice judging of jelly, using score card.
4. Explanation by leader of the use of relishes—the factors to keep in mind in making relishes, ways of using them.
5. Appointment of demonstration team for following meeting.
6. Song.
7. Club pledge.
8. Dismissal.

Fifth Meeting

1. Call to order.
2. Roll call.
3. General practice judging of products canned—fruits, vegetables, relishes.

4. Check on record books.
5. Song.
6. Club pledge.
7. Dismissal.

Sixth Meeting

1. Call to order.
2. Roll call.
3. General discussion of making of pickles; types of pickles; causes of spoilage, reasons for soft pickles and hollow pickles; kinds of pickles to make.
4. Assignment of home work.
5. Plans for a club picnic or party. Appointment of committees.
6. General discussion of canning problems.
7. Club pledge.
8. Games.
9. Dismissal.

Seventh Meeting

1. Club picnic or party.
2. Games and songs.
3. Appointment of demonstration team for next meeting.
4. Club pledge.
5. Dismissal.

Eighth Meeting

1. Call to order.
2. Roll call.
3. General plans for exhibits.
4. Canning demonstration—any kind of fruit, vegetables, meats, soup mixtures.
5. General discussion.
6. Club pledge.
7. Dismissal.

Ninth Meeting

1. Call to order.
2. Roll call.
3. Announcements of new work.
4. Review of general discussion of problems in making pickles.
5. Report on home work.
6. Report of committees.
7. Continuation of plans for exhibits and Achievement Day.
8. Practice judging.
9. Appointment of demonstration teams for next meeting.
10. Song.
11. Club pledge.
12. Dismissal.

Tenth Meeting

1. Call to order.
2. Roll call.

3. Three judging demonstrations:
   a. Canning.
   b. Jelly-making.
   c. Relishes.
4. General discussion of all problems involved in demonstrations.
5. Appointment of committees and demonstration team.
6. Club pledge.
7. Games.
8. Dismissal.

Eleventh Meeting

1. Call to order.
2. Roll call.
3. Completion of record books.
4. Plans for Achievement Day.
5. Discussion of home work.
6. Song.
7. Club pledge.
8. Dismissal.

Twelfth Meeting

Achievement Day.—Record books are to be turned in for the final completion of the project, and the club may present exhibits of work done or other activities suitable for the achievement day program.